

SUMMARY OF AGRICULTURAL DATA: SUGARCANE CROP 1968/69 AND 1969/70

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Introduction

As in previous years this summary is based on data obtained from the Sugar Industry Central Board. The areas used are taken from the Survey of Cane Production conducted in 1969 and the tonnages and sucrose content of cane are from schedules of deliveries.

This year, for the first time, sucrose per cent cane and weight of sucrose produced per unit area are introduced. While the sucrose per cent cane for different regions is of interest, the differences between regions are small and compared with yield differences often insignificant with the result that the order of cane yields and sucrose yields for the different areas are very similar.

All data are, as from this year, given in metric units.

Total Areas and Yields

Total areas under cane, total yields and sucrose data are given in Table 1. The area under cane, while a little higher in the years 1966 and 1967, seems now to have settled down at about 330 000 hectares. There can be no doubt that, if allowances are made for periodic droughts, the average yield of cane per unit area per unit of time is increasing satisfactorily; but unfortunately there are also indications that low sucrose per cent cane values are being recorded in recent years and the sucrose content of cane during the 1969/70 season was again particularly low. The average sucrose content of cane for the 10 year period 1945–1954 was 13.79 per cent and for the period 1955–1964 it was 13.53 per cent with the lowest annual sucroses for this 20 year period being recorded at 13.11 per cent in 1957/58 and 13.12 per cent in 1958/59. Since 1965, however, 13.11 per cent has only been exceeded once, in the 1966/67 season, when it was 13.72 per cent, and in three out of five years a figure below 13.0 per cent has been recorded.

During the 1969/70 season a total of 14.8 million tons cane was harvested with a yield of 5.8 tons sucrose

per hectare of cane under cultivation. This is well below the record figures of 1967/68 but appreciably better than for 1968/69.

Rainfall and Yield

The low yields obtained in 1968/69 were due to a severe drought. Up to the end of February 1969 the 1969/70 crop once again appeared seriously threatened by a most severe drought, but fortunately late rains from March 1969 on, did much to retrieve the situation. The consequent late growth was responsible for the season starting off with a very low sucrose content.

Table 2 gives yield and rainfall data for the industry during recent years. It will be seen from the table how very dependent our production is on rainfall but also that the yield per unit of rainfall has increased appreciably during the sixties. The ratio of yield to rainfall has, however, compared with the two previous seasons dropped sharply during the 1969/70 season. This ratio, useful as it is, must be considered as a somewhat crude statistic being influenced by a number of factors some of which, such as going for farm mean peaks, are not connected with efficiency of production. Nevertheless the lateness of the rain must have had a considerable effect in reducing the figure for the 1969/70 season.

Group Production

Table 3 shows that European growers were responsible for 71 per cent of the sucrose produced during the 1969/70 season. All groups showed an increased production in 1969/70 compared with the previous season, but the Indian growers showed the greatest percentage improvement, although yields for both Indian and Bantu growers remain low. The rather old but poor yielding cane from the Bantu areas averaged slightly higher in sucrose content than cane from the other groups.

TABLE 1

TOTAL AREA UNDER CANE		SEASON	TOTAL CROP		SUCROSE % CANE	AREA HARVESTED		t CANE/ha		t SUC./ha UNDER CANE
1st May	ha × 10 ⁻³		CANE t × 10 ⁻⁶	SUCROSE t × 10 ⁻⁶		ha × 10 ⁻³	%	HARVESTED	UNDER CANE	
1965	327	65/66	8.4	1.09	13.0	119	41*	71	29*	3.8*
1966	339	66/67	14.1	1.93	13.7	174	53*	81	43*	5.9*
1967	337	67/68	16.9	2.18	12.9	200	59	85	50	6.5
1968	331	68/69	13.7	1.80	13.1	182	55	75	41	5.4
1969	330	69/70	14.8	1.91	12.9	—	—	—	45	5.8

(* Area under cane for the previous season used.)

TABLE 2

SEASON	t cane/ha under cane	% Area irrigated	RAINFALL for year ending 31st May		RATIO t cane/ha per 100 mm rainfall
			YEAR	RAINFALL mm	
45/46—49/50	27.2		45—49	917	3.0
50/51—54/55	29.6		50—54	924	3.2
55/56—59/60	33.9		55—59	1109	3.1
60/61—64/65	37.2		60—64	976	3.8
1965/66	28.9	11.3	1965	737	3.9
1966/67	43.1	12.9	1966	995	4.3
1967/68	50.2	14.4	1967	982	5.1
1968/69	41.5	14.4	1968	764	5.4
1969/70	44.8	14.8	1969	1011	4.4

TABLE 3

	% OF AREA UNDER CANE 1st May 1969	% OF TOTAL CROP 69/70		t cane/ha HARVESTED 68/69	t cane/ha UNDER CANE		SUCROSE % CANE		t Suc./ha UNDER CANE	
		CANE	SUCROSE		68/69	69/70	68/69	69/70	68/69	69/70
European Growers	67.8	70.8	71.0	79	44	47	13.1	12.9	5.7	6.0
Miller-cum-planter	19.2	20.8	20.7	79	45	49	13.0	12.8	5.9	6.2
Indian Growers	8.9	6.0	6.0	49	25	30	13.1	12.8	3.2	3.9
Bantu Growers	4.1	2.3	2.4	49	23	26	13.6	13.2	3.2	3.4
TOTAL	100.0	100.0	100.0	75	41	45	13.1	12.9	5.4	5.8

Regional Production

The regional production data given in Table 4 deals with European growers and miller-cum-planter groups only.

The best sucrose content was obtained in the Pongola, Gollel-Mkuze areas, where the average sucrose for the last two seasons was over 14 per cent. The Nkwaleni valley, which is also under irrigation, however, averaged only 12.6 per cent sucrose for the same period.

The Eastern Transvaal obtained the outstandingly good yield of 13.3 tons sucrose per hectare under cane during the 1969/70 season, which is more than double the average yield of Zululand, the North Coast or the South Coast. The Eastern Transvaal is, of course, a new cane producing area and the possibility exists that their production figure may be a little inflated as a result of old cane. The yield figure

for Pongola for the same season was 11.0 tons sucrose per hectare followed by the Umfolozi-Umhlutuzi flats with 8.3 tons sucrose per hectare under cane. The new Melmoth area had the rather satisfactory average of 6.7 tons sucrose per hectare.

While there was an appreciable improvement from the 1968/69 season to the 1969/70 season in the average yield per unit area in the Northern areas, Zululand, the North Coast and the South Coast, the figures for the Midlands show a drastic fall. In the case of the Northern areas and the North Coast an improvement was shown in each and every sub-region. In Zululand only a few minor falls were recorded but in the Midlands the average fall was from 5.3 to 3.7 tons sucrose per hectare under cane and a fall was recorded in each sub-region. On the South Coast the interior area also showed a drastic fall from 4.3 to 2.9 tons sucrose per hectare under cane.

TABLE 4
Regional Production

Region	Area under cane (ha × 10 ⁻³)	% Area Irrigated	% area Harvested		t cane/ha Harvested		t cane/ha under cane			Rainfall (mm) Year Ending 31st May			t cane/ha/100 mm of rainfall			S % C		t suc/ha under cane	
	1/5/1969	69/70	67/68	68/69	67/68	68/69	67/68	68/69	69/70	1967	1968	1969	67/68	68/69	69/70	68/69	69/70	68/69	69/70
Eastern Transvaal	9.7	100	58	77	112	129	65	99	102	—	—	511	—	—	19.9	13.4	13.1	13.2	13.3
Pongola	8.0	99	80	74	104	89	84	65	80	717	570	663	11.7	11.5	12.1	14.7	13.8	9.6	11.0
Gollel, Mkuzi	1.2	96	70	71	93	68	59	48	54	823	423	623	7.1	11.3	8.7	14.2	13.7	6.8	7.4
Northern Area	18.9	99	68	75	106	108	73	81	90	—	—	—	—	—	—	13.9	13.4	11.2	12.0
Hluhluwe, Nyalazi River	3.8	68	64	65	59	59	37	38	42	765	599	897	4.9	6.4	4.7	13.5	13.1	5.1	5.5
Umfolozi, Umhlatuzi Flats	7.5	16	79	73	105	91	82	66	67	808	817	1071	10.2	8.1	6.3	12.9	12.4	8.6	8.3
Mtubatuba, Eteza	8.7	12	63	61	80	74	50	45	43	775	627	941	6.5	7.2	4.6	13.1	12.8	5.9	5.5
Kwambonambi, Mpoza	4.9	10	59	55	74	72	44	40	36	903	751	998	4.8	5.3	3.7	13.1	12.8	5.2	4.7
Empangeni, Felixton, Enseleni	14.7	9	62	58	90	80	56	46	50	1110	784	1205	5.0	5.9	4.1	13.1	12.9	6.1	6.4
Heatonville, Ntambanana	7.8	30	55	45	61	51	33	23	29	897	529	900	3.7	4.3	3.2	13.0	13.0	3.0	3.8
Nkwaleni Valley	4.4	94	67	50	95	75	63	38	55	830	434	796	7.6	8.6	6.9	12.5	12.7	4.7	7.0
Mtunzini, Gingindhlovu	15.1	9	68	59	93	79	63	47	55	1524	951	1181	4.1	4.9	4.6	13.0	13.1	6.1	7.1
Amatikulu, Mandini	5.9	10	61	55	83	73	51	40	45	1069	821	1025	4.7	4.9	4.4	13.4	13.2	5.3	6.0
Ngoye	3.1	5	67	52	81	64	54	33	41	1137	774	948	4.7	4.3	4.3	12.9	13.2	4.3	5.4
Eshowe, Entumeni	8.8	2	57	47	92	74	52	35	47	1148	843	1123	4.6	4.1	4.2	12.7	12.9	4.4	6.1
Melmoth	4.1	1	43	58	110	90	47	52	52	—	—	1154	—	—	4.5	13.1	12.9	6.8	6.7
Mixed Subregions	6.0																		
Zululand	94.8	17	63	56	86	75	54	43	48	1063	757	1056	5.1	5.6	4.5	13.0	12.9	5.6	6.1
Tugela, Newark	0.9	30	60	51	83	67	50	34	41	1113	861	1054	4.5	3.9	3.9	13.3	13.4	4.5	5.4
Coastal (4-5 miles inland)	28.8	20	70	61	89	76	62	46	51	936	772	1007	6.6	6.0	5.0	12.7	12.6	5.9	6.4
Glendale	1.6	55	64	47	95	88	60	41	49	923	670	795	6.5	6.1	6.2	13.2	13.1	5.4	6.4
Intermediate area (Kearsney, Upper Chakas Kraal)	17.6	3	62	53	90	75	56	40	52	1085	813	1040	5.2	4.9	5.0	12.8	12.7	5.1	6.6
Coastal Plateau (Doornkop, Upper Tongaat, Inanda)	9.3	0	57	53	97	90	56	48	52	1173	814	1093	4.8	5.9	4.7	13.1	12.8	6.3	6.6
Mixed Subregions	24.6																		
North Coast	82.8	13	65	58	90	77	59	45	50	1018	791	1023	5.8	5.6	4.9	12.7	12.7	5.7	6.4
Bishopstowe	2.5	0	45	48	98	88	44	43	27	1088	788	1131	4.1	5.4	2.4	13.0	13.3	5.5	3.6
Cedara, Crammond, Seven Oaks	2.6	0	42	57	79	82	33	47	31	—	—	1144	—	—	2.7	12.6	12.5	6.0	3.8
Mt. Alida																			
Wartburg, Fawnleas, Dalton	11.2	0	44	51	83	76	37	39	28	921	894	1013	4.0	4.3	2.7	12.6	12.7	4.9	3.5
Kranskop	2.8	3	46	55	82	83	37	46	26	1088	788	1131	3.4	5.9	2.3	12.5	12.5	5.8	3.3
Tala Valley	1.3	48	55	58	88	69	49	40	37	965	640	675	5.1	6.3	5.4	13.3	12.4	5.3	4.5
Eston, Mid-Illovo, Richmond	8.4	1	50	50	88	82	43	41	27	965	640	675	4.5	6.4	4.0	13.2	12.6	5.4	3.4
Hillcrest Inchangana	2.1	6	48	49	92	83	45	40	30	—	791	1134	—	5.1	2.6	13.2	12.4	5.3	3.7
Mixed Subregions	8.1																		
Midlands	39.1	3	46	52	86	80	40	41	30	1005	782	984	4.0	5.3	3.0	12.8	12.6	5.3	3.7
Coastal, N of Hibberdene	4.8	0	49	52	78	75	38	39	41	856	791	963	4.5	4.9	4.3	12.8	12.5	5.0	5.1
Coastal, S of Hibberdene	11.2	1	58	51	81	70	47	35	49	901	715	1108	5.2	5.0	4.4	13.2	13.2	4.7	6.5
Intermediate Region	5.5	0	46	42	80	76	37	32	32	912	672	773	4.1	4.8	4.2	13.6	13.2	4.4	4.3
Coastal Plateau (Powerscourt, Highflats)	1.4	0	51	44	91	88	46	38	42	931	774	786	4.9	5.0	5.4	13.6	13.3	5.2	5.6
Coastal Plateau (Paddock, Maringo, Oribi)	6.3	2	54	50	84	72	46	36	42	742	562	752	6.1	6.4	5.6	13.3	13.0	4.8	5.4
Inland (Nquabeni, Hluku, Harding)	1.4	6	42	46	71	69	29	32	22	—	579	770	—	5.4	2.8	13.7	13.5	4.3	2.9
Mixed Subregions	21.3																		
South Coast	51.9	3	55	48	82	73	45	35	41	878	699	895	5.2	5.0	4.5	13.3	13.0	4.6	5.3
Total: European and Miller-cum-Planter Groups	287.5	17	60	56	89	79	53	44	47							13.1	12.9	5.8	6.1

Discussion

Dr. Thompson (in the chair): Mr. du Toit has pointed out the decline in sucrose throughout the industry over the past twenty years, so that the average is now below 13%.

The average sucrose for Pongola mill in 1956 was 15.6% and it dropped in 1970 to 13.8%, in line with the industry as a whole. Can he perhaps outline the possible reasons for this decline?

Mr. du Toit: There are certain factors depressing sucrose, for instance, extraneous matter and the cutting of young cane.

The only area showing a larger sucrose figure is the Umfolosi area, but that could be accounted for by the decreased water table there.

The longer seasons in recent years would also have had an unfavourable effect on sucrose.

Mr. Renaud: The two farms owned by U.V.S. had extremely high sucrose figures this season.

Mr. du Toit: This is a feature so far this year. Last year there was a drought period followed by good rains in March and April, giving excellent late growth with consequent low sucrose.

This year has been very dry from February until May, when heavy rains fell that saved the industry, and it is not surprising that sucrose is high.

Dr. Thompson: Is there any comment on the fact that in the midlands area the sucrose yield fell from 5.3 tons to 3.7 tons per hectare? Was the area harvested particularly low in 1969/70?

Mr. du Toit: If you consult the table showing percentages of area cut you will see that the figure is not available for last year. But compared to the previous year the area cut has increased and apparently the farmers in these newly-planted areas have gone for farm mean peaks later than the rest of the industry.

Mr. Sherrard: Has not the replacement of NC₀ 310 by NC₀ 334 resulted in a decrease in sucrose? In our area, Umfolosi, we have retained NC₀ 310 and the sucrose is still high.

Mr. du Toit: This could certainly have been one factor.

Figures recently extracted for Malelane show that NC₀ 310 and NC₀ 334 are appreciably higher in sucrose than NC₀ 376.

Dr. Thompson: However, in Pongola, the sucrose figure has also dropped considerably, although NC₀ 310 is still predominant.

Mr. Moberly: Surely the amount of N being used will have an effect on sucrose?

Mr. du Toit: This would be a contributory factor, but does not fully explain the drop in sucrose.

Mr. Browne: The change in recent years from rail to road transport of cane has undoubtedly caused delays in getting cane to the mill and this would have some effect on sucrose.

Dr. Thompson: It is a sad commentary that delays should have increased rather than decreased.

Referring to table 2, which gives tons cane per hectare per 100 mm of rainfall, and bearing in mind the limitations pointed out by the authors, it is fairly certain that we can get nine tons of cane per hectare per 100 mm of rainfall. However, the industry as a whole is getting less than half this figure, but at least one grower, who harvests 1,000 ha per crop, is actually getting the figure of 9.

Mr. du Toit: To make the matter worse, the figure of 4.4 includes the areas under irrigation — about 15% of the industry.

Mr. Browne: The length of the season (age of cane) appears to have some connection with the effective use of water.

Would not tons of cane per inch of rainfall per months not be a better figure to use?

Mr. Murdoch: It is not possible to get such a figure on an industry-wide basis.

Dr. Dodds: Possibly the new varieties are more susceptible to drought than the old varieties. Varietal data have not been included in the tables.

Mr. du Toit: Inclusion of varietal data delays the reporting of figures and in any case the figures are very unreliable.

When the industry is fully computerised, this information will be given for the different areas.

Regarding drought conditions, I have heard it said that NC₀ 376 does not stand up well to drought.

Dr. Gosnell: In Rhodesia CP 29/116 is extremely drought resistant and is supposed to be immune to R.S.D.

Where we have experienced drought, CP 29/116 has recovered quicker than other varieties.

There seem to be no relationship between recovery from drought and susceptibility to scorching as CP 29/116 does scorch very easily.

Many growers' comments on drought will be related to scorching.

Mr. du Toit: We believe that R.S.D. will be more severe in drought conditions and yet it appears that even under good irrigation conditions R.S.D. can have a severe effect on cane yield.

Dr. Gosnell: A recently established experiment at Chiredzi compares heat-treated cane with non heat-treated cane and cane that it is believed has been infected with R.S.D.

Early indications are that there is no difference up to six months provided there is plenty of irrigation.

Mr. Perk: A useful figure would be tons of "made" sugar per hectare.

Mr. Murdoch: This figure is easily obtained for the whole industry but not for individual areas, unless the same tons cane/tons sugar ratio is used for all areas.

Figures could be obtained per mill, but mills are not synonymous with the regions we show.